UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
BLAIR, DOUGLAS B

ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
09/30/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/666,621	TANG ET AL.
Office Action Summary	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 June 2009</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16 and 23-27</u> is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-16 and 23-27</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All   b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Appeal Brief

In view of the Appeal Brief filed on 6/19/2009, PROSECUTION IS HEREBY

REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following

two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37

CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an

appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee

can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have

been increased since they were previously paid, then appellant must pay the difference between

the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing

at the conclusion of this office action.

Response to Arguments

Most of the applicant's arguments are moot as the previous prior art rejection is

withdrawn. However, the 112 2nd paragraph rejection is maintained. It is clear that the

applicant understands the issue but the applicant's remarks do not make the claim itself clear.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23-25 are rejected under 35 U.S.C. 112, first paragraph, as being drawn to a single means claim. Section 2164.08(a) of the MPEP states that "A single means claim, i.e., where means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph". In the instant case the applicant's Appeal Brief supplement filed on 6/19/2009 states that the claimed means is a processor. The applicant is not entitled to a claim for a processor as the applicant has not disclosed anything novel about a processor. The applicant does not put the public in possession of any information about a processor. Means plus function claims are appropriate for claiming elements that are novel with respect to the applicant's invention and not common computer elements.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how physically close nodes can be stored in overlay nodes. How does a node store an actual node? It is believed by the Examiner may be trying to claim the position of the nodes and not the nodes themselves being stored. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-16 and 23-27 are rejected under 35 U.S.C. 102(e) as being anticipated by

U.S. Patent Number 7,266,125 to Xu et al.

The applied reference has a common inventor with the instant application. Based upon

the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C.

102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the

inventor of this application and is thus not the invention "by another," or by an appropriate

showing under 37 CFR 1.131.

As to claim 1, Xu teaches a method of identifying a close-by node in a region of an

overlay network, wherein the overlay network is a logical representation of a physical network

(Figures 2-6 and corresponding text), the method comprising: determining first proximity

information associated with a location of a first node in the physical network (Figures 2-6 and

corresponding text); searching through a map associated with a region of the overlay network

using the first proximity information, wherein the map includes proximity information associated

with locations of nodes physically close in the physical network (Figures 2-6 and corresponding

text); identifying a routing node in the region of the overlay network based on the searching

through the map, wherein the routing node is a node in the region physically closest to the first

node in the physical network relative to other nodes in the region (Figures 2-6 and corresponding

text).

As to claim 2, Xu teaches the method of claim 1, wherein searching through a map

associated with a region of the overlay network using the first proximity information, further

comprises: comparing proximity information in the map associated with a plurality of nodes in

the overlay network to the first proximity information to identify the node in the region

physically closest to the first node in the physical network (Figures 2-6 and corresponding text).

As to claim 3, Xu teaches the method of claim 1, further comprising: storing routing

information for the routing node in a routing table for the first node, such that messages

transmitted to the region of the routing node are transmitted to the routing node in the region

from the first node wherein the first node is located in another region in the overlay network

(Figures 2-6 and corresponding text).

As to claim 4, Xu teaches the method of claim 1, wherein the overlay network is an

expressway content addressable overlay network and the first node and the routing node are

expressway routing nodes in the overlay network (Figures 2-6 and corresponding text).

As to claim 5, Xu teaches the method of claim 1, further comprising storing the map in nodes

logically close in the overlay network, such that the proximity information in the map for the

nodes physically close in the physical network is stored in the nodes logically close in the

overlay network (Figures 2-6 and corresponding text).

As to claim 6, Xu teaches the method of claim 1, further comprising generating the proximity information for the map by performing steps of selecting landmark nodes in the physical network; determining distances to the landmark nodes for the nodes in the overlay network; determining landmark vectors for the nodes in the overlay network abased on the determined distances to the landmark nodes; mapping the landmark versions to points in the region of the overlay network; and storing the landmark vectors at nodes associated with the points in the region as the proximity information for the map (Figures 2-6 and corresponding text).

As to claim 7, Xu teaches the method of claim 6, wherein selecting landmark nodes in the physical network comprises randomly selecting nodes in the physical network to be the landmark nodes (Figures 2-6 and corresponding text).

As to claim 8, Xu teaches the method of claim 6, wherein mapping the landmark vectors to points in the region in the overlay network further comprises: assigning landmark numbers to grids in a landmark space; identifying a grid of the grids where each landmark vector is located in the landmark space; assigning one of the landmark numbers to each of the landmark vectors based on the grid where the a respective landmark vector is located; and mapping the landmark numbers from the landmark space to the overlay network using a space filling curve, wherein the landmark space is an n-dimensional space and the overlay network is an m-dimensional space, and n>m (Figures 2-6 and corresponding text).

As to claim 9, Xu teaches a method of identifying a node in a region of an overlay network, wherein the overlay network is a logical representation of a physical network, the method comprising: determining first proximity information associated with a location of a source node in the physical network (Figures 2-6 and corresponding text); searching through a

map associated with a target region of the overlay network using the first proximity information, wherein the map includes proximity information associated with locations of nodes physically close in the physical network (Figures 2-6 and corresponding text); and identifying a subset of nodes in the target region closest to the first node in the physical network based on the searching through the map (Figures 2-6 and corresponding text).

As to claim 10, Xu teaches the method of claim 9, further comprising: determining distances from the source node to the subset of nodes; and selecting from the subset of nodes a node closest to the source node in the physical network based on the determined distances (Figures 2-6 and corresponding text).

As to claim 11, Xu teaches the method of claim 10, further comprising: entering the selected closest node in a routing table for the source node, wherein the selected closest node is used by the source node to route messages to the target region (Figures 2-6 and corresponding text)

As to claim 12, Xu teaches the method of claim 9, further comprising generating proximity information for nodes in the overlay network, the generated proximity information including the first proximity information and the proximity information for the map, wherein generating the proximity information comprises: selecting landmark nodes in the physical network; determining distances from a substantial number of nodes in the overlay network to the landmark nodes; determining locations in the physical network for the substantial number of nodes based on the determined distances to the landmark nodes (Figures 2-6 and corresponding text).

As to claim 13, Xu teaches the method of claim 12, wherein the locations comprise landmark vectors for the substantial number of nodes, wherein the landmark vectors include components representing distances from each of the substantial number of nodes to each of the landmark nodes (Figures 2-6 and corresponding text).

As to claim 14, Xu teaches the method of claim 9, further comprising: identifying a location of a node in the target region in the overlay network storing the map; and transmitting a map lookup request to the node in the target region (Figures 2-6 and corresponding text).

As to claim 15, Xu teaches the method of claim 14, wherein identifying a location of a node in the target region storing the map further comprises hashing a landmark number associated with the target region using a hash function (Figures 2-6 and corresponding text).

As to claim 16, Xu teaches the method of claim 15, wherein the hash function comprises a space filling curve (Figures 2-6 and corresponding text).

As to claim 23, Xu teaches a node in an overlay network, wherein the overlay network is a logical representation of a physical network, the node comprising: means for determining first proximity information associated with a location of the node in the network (col. 8, lines 31-60); means for searching through a map associated with a region of the overlay network using the first proximity information, wherein the map includes proximity information associated with locations of other nodes physically close in the physical network (col. 8, lines 31-60); and means for identifying a routing node in the region of the overlay network based on the searching through the map, wherein the routing node is a node in the region physically closest to the node relative to other nodes in the region (Figures 2-6 and corresponding text).

As to claim 24, Xu teaches the node of claim 23, wherein the node comprises means for storing routing information for the routing node in a routing table, such that messages transmitted to the region of the routing node are transmitted to the routing node (Figures 2-6 and corresponding text).

As to claim 25, Xu teaches the node of claim 23, further comprising: means for storing the map for the region; and means for updating the stored map in response to detecting predetermined changes to the network (Figures 2-6 and corresponding text).

As to claim 26, Xu teaches the method of claim 1, further comprising: for each of the first node and the nodes in the region, identifying an overlay node based on proximity of the respective node; and for each of the first node and the nodes in the region, storing the proximity information in the respective overlay node, wherein nodes physically close based on their proximity information are stored in overlay nodes that are close in the overlay network (Figures 2-6 and corresponding text).

As to claim 27, Xu teaches the method of claim 27, further comprising retrieving the map from the overlay node storing the proximity information for one or more of the nodes in the region (Figures 2-6 and corresponding text).

Claims 1-3, 5, 9-14 and 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,862,500 to Tzamalouka.

As to claim 1, Tzamalouka teaches a method of identifying a close-by node in a region of an overlay network, wherein the overlay network is a logical representation of a physical network (col. 5, lines 3-35), the method comprising: determining first proximity information associated with a location of a first node in the physical network (col. 5, lines 3-35); searching

through a map associated with a region of the overlay network using the first proximity

information, wherein the map includes proximity information associated with locations of nodes

physically close in the physical network (the central geographic database is the map); identifying

a routing node in the region of the overlay network based on the searching through the map,

wherein the routing node is a node in the region physically closest to the first node in the

physical network relative to other nodes in the region (the closest mobile egress point is the

claimed routing node).

As to claim 2, Tzamalouka teaches the method of claim 1, wherein searching through a

map associated with a region of the overlay network using the first proximity information,

further comprises: comparing proximity information in the map associated with a plurality of

nodes in the overlay network to the first proximity information to identify the node in the region

physically closest to the first node in the physical network (col. 5, lines 3-35).

As to claim 3, Tzamalouka teaches the method of claim 1, further comprising: storing

routing information for the routing node in a routing table for the first node, such that messages

transmitted to the region of the routing node are transmitted to the routing node in the region

from the first node wherein the first node is located in another region in the overlay network (col.

5, lines 3-35).

As to claim 5, Tzamalouka teaches the method of claim I, further comprising storing the

map in nodes logically close in the overlay network, such that the proximity information in the

map for the nodes physically close in the physical network is stored in the nodes logically close

in the overlay network (col. 5, lines 3-35).

As to claim 9, Tzamalouka teaches a method of identifying a node in a region of an
overlay network, wherein the overlay network is a logical representation of a physical network,
the method comprising: determining first proximity information associated with a location of a
source node in the physical network (col. 5, lines 3-35); searching through a map associated with
a target region of the overlay network using the first proximity information, wherein the map
includes proximity information associated with locations of nodes physically close in the
physical network (col. 5, lines 3-35); and identifying a subset of nodes in the target region closest
to the first node in the physical network based on the searching through the map (col. 5, lines 3-
35).

As to claim 10, Tzamalouka teaches the method of claim 9, further comprising:
determining distances from the source node to the subset of nodes; and selecting from the subset
of nodes a node closest to the source node in the physical network based on the determined
distances (col. 5, lines 3-35).

As to claim 11, Tzamalouka teaches the method of claim 10, further comprising: entering
the selected closest node in a routing table for the source node, wherein the selected closest node
is used by the source node to route messages to the target region (col. 5, lines 3-35).

As to claim 12, Tzamalouka teaches the method of claim 9, further comprising generating
proximity information for nodes in the overlay network, the generated proximity information
including the first proximity information and the proximity information for the map, wherein
generating the proximity information comprises: selecting landmark nodes in the physical
network; determining distances from a substantial number of nodes in the overlay network to the

landmark nodes; determining locations in the physical network for the substantial number of

nodes based on the determined distances to the landmark nodes (col. 5, lines 3-35).

As to claim 13, Tzamalouka teaches the method of claim 12, wherein the locations

comprise landmark vectors for the substantial number of nodes, wherein the landmark vectors

include components representing distances from each of the substantial number of nodes to each

of the landmark nodes (col. 5, lines 3-35).

As to claim 14, Tzamalouka teaches the method of claim 9, further comprising:

identifying a location of a node in the target region in the overlay network storing the map; and

transmitting a map lookup request to the node in the target region (col. 5, lines 3-35).

As to claim 23, Tzamalouka teaches a node in an overlay network, wherein the overlay

network is a logical representation of a physical network, the node comprising: means for

determining first proximity information associated with a location of the node in the network

(col. 5, lines 3-35); means for searching through a map associated with a region of the overlay

network using the first proximity information, wherein the map includes proximity information

associated with locations of other nodes physically close in the physical network (col. 5, lines 3-

35); and means for identifying a routing node in the region of the overlay network based on the

searching through the map, wherein the routing node is a node in the region physically closest to

the node relative to other nodes in the region (col. 5, lines 3-35).

As to claim 24, Tzamalouka teaches the node of claim 23, wherein the node comprises

means for storing routing information for the routing node in a routing table, such that messages

transmitted to the region of the routing node are transmitted to the routing node (col. 5, lines 3-

35).

As to claim 25, Tzamalouka teaches the node of claim 23, further comprising: means for storing the map for the region; and means for updating the stored map in response to detecting predetermined changes to the network (col. 5, lines 3-35).

As to claim 26, Tzamalouka teaches the method of claim 1, further comprising: for each of the first node and the nodes in the region, identifying an overlay node based on proximity of the respective node; and for each of the first node and the nodes in the region, storing the proximity information in the respective overlay node, wherein nodes physically close based on their proximity information are stored in overlay nodes that are close in the overlay network (col. 5, lines 3-35).

As to claim 27, Tzamalouka teaches the method of claim 27, further comprising retrieving the map from the overlay node storing the proximity information for one or more of the nodes in the region (col. 5, lines 3-35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,862,500 to Tzamalouka in view of the Paper entitled "Building Low-maintenance Expressways for P2P Systems" by Zhang (copyrighted in 2002, part of IDS filed on 1/29/2004).

As to claim 4, Tzamalouka teaches the method of claim 3 however Tzamalouka does not explicitly teach an expressway content-addressable overlay network.

Zhang teaches the use of an overlay network is an expressway, content-addressable, overlay network, and the first node and the routing node are expressway routing nodes in the overlay network (First page, for example).

It would have been obvious to one of ordinary skill in the Computer Networking art at time of the invention to combine the teachings of Tzamalouka regarding overlay networks with the teachings of Zhang regarding expressway content-addressable overlay networks because such networks improve efficiency (Zhang).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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